



East Texas Plant Materials Center

2025 Report of Activities



Figure 1: Aerial view of production and research fields at the East Texas Plant Materials Center

The East Texas Plant Materials Center (ETPMC) is one of 25 Plant Materials Centers throughout the nation. The NRCS Plant Materials Program staff functions as plant experts for NRCS, coordinating with technical and field office staff to develop and deliver vegetative solutions and conservation technology for NRCS customers.

Established in 1982 as a joint venture of the Deep East and Northeast Texas Association of Conservation Districts and the Arthur Temple College of Forestry and Agriculture at Stephen F. Austin State University (SFASU), the ETPMC was originally located at the SFASU Beef Farm. In 1987, the center moved to the current location in the Angelina National Forest adjacent to the SFASU Experimental Forest and maintains more than 70 acres of research and production fields for the development of native plant material for the Western Coastal Plain. This diverse service area covers 44 million acres throughout East Texas, Northwest Louisiana, Southwest Arkansas and Southeast Oklahoma with bottomland hardwoods, upland pine forests, croplands and rangelands.

Major resource concerns in the Western Coastal Plain primarily include soil health, water quality improvement, declining longleaf and shortleaf pine ecosystems, wildlife habitat improvement, and degraded pastureland. The ETPMC's focuses on developing regional ecotypes of understory plant species for longleaf and shortleaf pine habitat restoration.

Native Grass Conversion

'Alamo' switchgrass (*Panicum virgatum*), developed primarily for forage production, can become too aggressive in conservation plantings, outcompeting other native grasses and forbs. To gain knowledge and demonstrate the steps to control 'Alamo' switchgrass, the ETPMC started a demonstration conversion in 2024. The NRCS Nacogdoches field office worked with a local landowner approximately 13 years ago on a native grass planting where hurricane-damaged timber was cleared. The field office followed NRCS conservation plan guidelines for the planting and included switchgrass in the native seed mix. The ETPMC was consulted on the planting and aided in the planter calibration of the original planting. The ETPMC recommended using an upland switchgrass instead 'Alamo,' which was specified in the mix, and 'Blackwell' was substituted in its place. The mix was planted and was very successful, however at year two it was very apparent that the switchgrass cultivar in the mix was not 'Blackwell.' The planting quickly became a monotypic stand of switchgrass reaching well over six feet in height, which was not conducive to the turkey habitat improvement goal the landowner was targeting.

In the spring of 2024, the ETPMC started efforts to eradicate the lowland switchgrass in the area so a diverse mix of native warm season grasses and forbs could be planted. Year one efforts to control the switchgrass consisted of two herbicide spray applications followed by one application with an herbicide wick. Applications were as follows:

1. Max rate of glyphosate tank mixed with 16 oz per acre Clethodim applied May 3, 2024
2. Max rate of glyphosate tank mixed with 8 oz of imazapic per acre June 5, 2024
3. Herbicide wick with 50/50 mix of glyphosate and water applied July 22, 2024

The spray mixes burned plants but failed to provide any form of control. The wick application did significant damage and had the greatest effect of the herbicide applications, but the root systems of the individual switchgrass bunches were still alive and viable, showing little sign of damage to the point of providing control.

The decision was made to use tillage to damage the root systems of the switchgrass, and the entire area was disced on April 2, 2025. After discing, large portions of root were still viable and began to resprout. On April 10, 2025, a large rototiller was brought onsite, and the planting was tilled thoroughly, breaking up and destroying all the switchgrass root clumps. A cover crop was recommended by the ETMC to prevent erosion on the site, and a multi-species cover crop was broadcast planted April 16, 2025. This was to act as a smother crop to shade out weeds and switchgrass seedlings, and the emphasis was placed on using very tall cover crop species such as sunflowers and Egyptian wheat. The tillage appeared to provide greater than 98% control of the switchgrass, and the cover crop established nicely during the 2025 growing season. The site will be planted to another tall cover crop mix in the spring of 2026 and prepped for the planting of a native seed mix in the winter of 2026. The native seed mix will be planted in February of 2027.



Figure 1: Herbicide application with wick



Figure 2: Effects of repeated herbicide applications



Figure 3: Field after discing



Figure 4: Field with summer cover crop

I.D. Fairchild State Forest Wildlife Habitat Planting

The ETPMC partnered with Jason Ellis, District Forester, with the Texas A&M Forest Service (TFS), on a wildlife habitat planting project on a recently daylighted portion in the I.D. Fairchild State Forest in Cherokee County. This and other Texas state forests serve as working and demonstration forests for landowners, as well as opportunities to collaborate with natural resource partners in forest management practices and research.

The I.D. Fairchild State Forest consists primarily of shortleaf pine (*Pinus echinata*), with occasional stands of loblolly pine, (*Pinus taeda*) and mixed hardwoods. Ellis manages this forest using different silvicultural practices that landowners can observe and replicate on their own property, including timber harvesting, stand improvement, and prescribed burning. A primary focus includes strategies to improve wildlife habitat for wild game species, including white-tailed deer (*Odocoileus virginianus*) and wild turkey (*Meleagris gallopavo*), as well as the federally threatened red-cockaded woodpecker, (*Dryobates borealis*), which occurs in portions of this forest.



Figure 1: Germinated forbs in the planting

Daylighting, as described in the NRCS Conservation Enhancement Activity for the Forest Stand Improvement Conservation Practice (E666G), is opening the tree canopy along roads and providing space between ground vegetation and tree crowns. Daylighting is increasingly practiced in southeastern forests to minimize the spread of wildfires, improve wildlife habitat, and to reduce road maintenance by allowing roads to dry out more quickly. Ellis and his team implemented this practice in one of their stands and approached the ETPMC about a native seed mix that would enhance value for wildlife.

ETPMC Manager, Alan Shadow, as well as Stover, were able to utilize the area as a training resource for NRCS, TFS and TPWD employees on seed selection, seeder calibration and seeding demonstration. A Woods PSS72 Precision Super Seeder with a native seed box was used for the demonstration.

Dawn Stover, ETPMC Agronomist, worked with NRCS Texas Zone 4 Wildlife Biologist, Frank Baca, to design a mix that follows the NRCS Conservation Practice Standard for Wildlife Habitat Planting (420) as another practical strategy for landowners to experience in the I.D. Fairchild State Forest. Ellis cleared a 30' strip from the edge of the road to forest edge around Stand 19, creating a 9-acre, daylighted corridor.



Figure 2: Shadow demonstrating planter calibration

Ellis mentioned several short-term management strategies to facilitate the success of the planting including spot spraying undesirable woody species including sweetgum (*Liquidambar styraciflua*) and implementing prescribed fire in late winter of year 2 to allow perennial forbs and legumes time to establish.

The seed mix included Coastal Plains Germplasm little bluestem (*Schizachyrium scoparium*), Catahoula collection pinehill little bluestem (*Schizachyrium scoparium* var. *divergens*), Indiangrass (*Sorghastrum nutans*), 'Mandan' Canada wildrye (*Elymus canadensis*), purpletop tridens (*Tridens flavus*), 'Kaw' big bluestem (*Andropogon gerardii*), narrowleaf mountainmint (*Pycnanthemum tenuifolium*), butterfly milkweed (*Asclepias tuberosa*), partridge pea (*Chamaecrista fasciculata*), lanceleaf tickseed (*Coreopsis lanceolata*), blackeyed Susan (*Rudbeckia hirta*), Cajun Sunrise Germplasm ashy sunflower (*Helianthus mollis*), spotted beebalm (*Monarda punctata*), Indian blanket (*Gaillardia pulchella*), pale purple coneflower (*Echinacea pallida*), wild bergamot (*Monarda fistulosa*), and prairie blazing star (*Liatris pycnostachya*).



Figure 3: Shadow speaking to landowners at the Fairchild Centennial Celebration

On April 26, 2025, East Texas landowners gathered at the I.D. Fairchild State Forest for the Centennial Celebration commemorating the acquisition of the forest in 1925 by the Texas A&M Forest Service. Professionals with TFS, Texas Parks and Wildlife, National Wild Turkey Federation and NRCS presented throughout the morning, with Shadow describing the wildlife habitat planting project.

Tribal Connections

Texas Conservation Corps

The ETPMC was fortunate to host students with the American Youthworks Texas Conservation Corps Tribal Youth Crew for a fourth consecutive summer. Participants in this program engage in hands-on conservation projects on public lands, including USFS and Alabama-Coushatta tribal lands. They perform a wide variety of forestry and habitat restoration related projects that help build a unique skill set and foster a connection to ancestral lands.

At the ETPMC, the focus is importance of understory plants and the role the Plant Materials Program plays in restoration efforts. Crew members spent a total of 4 days over the summer, 2 days each in June and July, and were able to learn and experience many of the stages of plant release development.

Crew members learned plant identification skills and used iNaturalist to document plant species and locations at a nearby property. We identified several plants of interest that answer NRCS resource concerns, and either collected seeds or marked locations for future collecting. They learned how to use the Westrup LA-LS small scale laboratory air screen cleaner and cleaned Harrison Germplasm Florida paspalum (*Paspalum floridanum*).

After learning how to clean seeds, the crew learned proper sowing techniques and sowed more than 2,000 plugs of 'Kinchafoonee' Virginia wildrye (*Elymus virginicus*) for a future seed increase planting at the center.

ETPMC staff also led the youth crew in planting two seed increase fields, with a hands-on planting an upcoming ETPMC release of switchgrass and used The Mechanical Transplanter bare root transplanter to plant plugs of Trinity Germplasm Indian grass.



Figure 1: Stover demonstrating seed collection



Figure 3: Tribal Youth Crew learning how to mechanically clean seeds



Figure 3: Tribal Youth Crew planting new switchgrass release

Culturally Significant Plants Workshop



Figure 1: Workshop participants choosing seeds

Krista Langley, Regional Tribal Relations Specialist, with the U.S. Forst Service and member of the Alabama Coushatta Tribe of Texas, partnered with Dawn Stover for a culturally significant plants workshop for youth and adult tribal members.

The youth participated in several games about ecosystems and forests led by Langley. Stover offered a hands-on learning activity using visual cues, touch and smell to help identify types of seeds. Langley presented plants and stories passed down through her family and Stover indicated the ecological services, propagation methods and proper landscape placement for those plants. Participants were able to take seeds and plants home for their own gardens.



Figure 2: Workshop participant filling a seed packet

Ongoing Studies

Observational Trials

Observational plant trials determining the potentially expanded area of adaptation for NRCS Plant Materials plant releases continue for the fourth year. Plant releases that show a wider area of adaptation are more suitable for large scale commercial production, making them more attractive for commercial growers and potentially more available for NRCS conservation planners. There are some promising germplasm releases from other PMCs across the southeast that will likely be added to the Zone 4 appendix. Final study results will be available in 2026. Please visit ETPMC staff for an interim evaluation.



Figure 1: Aerial view of switchgrass varieties in observational trail

MSPMC entries:

1. Tusca Germplasm switchgrass
2. Espresso Germplasm switchgrass
3. Robusto Germplasm switchgrass
4. Supremo Germplasm big bluestem
5. Excelso Germplasm Indiangrass
6. Cappuccino Germplasm little bluestem
7. Copiah Germplasm southeastern wildrye
8. Coahoma Germplasm southeastern wildrye

MOPMC entries:

1. Refuge Germplasm big bluestem
2. OZ-70 Germplasm big bluestem

FLPMC entry:

1. Sunrise Germplasm eastern gamagrass

ETPMC entries:

1. Coastal Plains Germplasm little bluestem
2. USFS Pinehill bluestem

3. Neches Germplasm splitbeard bluestem

4. Harrison Germplasm Florida paspalum

5. 'Nacogdoches' eastern gamagrass

6. Crockett Germplasm herbaceous mimosa

7. Cajun Sunrise Germplasm ashy sunflower

8. Pineland Gold Germplasm swamp sunflower

9. Pineywoods Germplasm thickspike gayfeather

10. 'Kinchafoonee' Virginia Wildrye

11. Pilgrim Germplasm velvet rosette grass

WVPMC entry:

1. WVPMC Germplasm eastern gamagrass

Commercial checks

1. 'Americus' Indiangrass (GAPMC)

2. Virginia wildrye - Roundstone source (MSPMC)

3. 'Rountree' big bluestem (MOPMC)

4. 'Aldous' little bluestem (MOPMC)

5. 'Highlander' eastern gamagrass (MSPMC)

6. 'Alamo' switchgrass (MSP)

Seeding Date/Rate Trial

In fall of 2024, the ETPMC joined in a national plant materials trial looking at the effects of seeding rates and dates, and termination timing on biomass of cool season legumes for production agriculture. Five rates of AU Merit hairy vetch were planted on three separate dates. Plot performances were not consistent leading to a failed planting. Planting in 2025 was postponed until fall of 2026 due to planting dates occurring during the government shutdown.

The Plant Materials Program is partnering with North Carolina State University to evaluate the PlantMap3D 'MonoOak' system that uses camera system that distinguishes plant types and estimates biomass

Future Plant Releases



Figure 1: Tribal Youth Crew using the Mechanical Transplanter to plant 'Trinity Germplasm' Indiangrass

The ETPMC is currently adding three seed increase fields for current and future plant releases. Pilgrim Germplasm velvet panicum (*Dichantheium scoparium*), a 2007 plant release, will be put back into production as a need for pioneer plant species in conservation seed mixes has been expressed.

Trinity Germplasm Indiangrass is comprised of rust resistant accessions from a Native Prairies of Texas collection in 2007. Twenty-three accessions were selected from the original collection for rust resistance, vigor, tiller density, size and color. These selections were tested with 'Lometa' as a control as well as with a plant with high susceptibility to rust. Five accessions from the 23 were selected for the release. Release documents are in progress, and seeds will be available to commercial growers in fall of 2026.

A future switchgrass release is also in progress. A study was conducted for three years where accessions were collected from an NPAT seed increase field at the ETPMC. Individual plants were selected for early growth, vigor, biomass, leaf width, stem diameter, and disease resistance. Selected material from the seed increase field was dug and split into 4x4 inch plugs and planted in a randomized complete block design with four replications. These accessions were tested against 'Alamo,' 'Kanlow,' 'Blackwell,' 'Cave-in-Rock,' and an experimental line from Mississippi State University. This led to the selection of a single accession that showed superior disease resistance, vigorous growth, and was in the same mean group as Alamo for biomass production but had the highest forage value of any accession or release in the study. The original goal was to develop a plant that could be used for biofuel production while providing higher quality forage than existing lowland switchgrass releases, allowing landowners multiple outlets of use.

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